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The Prairie NADCA
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Thoughts...

Robert H. Giles, Jr., President, NADCA

Over the years it has always surprised me when people ask "why manage wildlife?" They are asking about what I do, generally, but the question seems foreign, probably because it is so basic and I assume everyone knows the answers. People in wildlife easily begin to think that they are like everyone, partially because they want everyone to be like they are — love the resource, tend it, care for it, prevent it from getting out of control, and other reasons. It turns out that hunter numbers are stable or are on the decline. Assuming hunters are a very well-informed group (and studies suggest that they are not), they nevertheless constitute less than 10 percent of the population. People who are well-informed about wildlife, especially about why it is managed and what wildlife management really is, are now in the minority. Wildlife managers are a new minority group.

Maybe it will help if we gain some strength in more common messages and more articulate answers to tough questions such as why manage wildlife. I think the answer is that we are trying to achieve some fundamental objectives. Some texts authors speak of wildlife 'values' but I like to use value to express relative importance. The majority of the fundamental objectives are: Metaphysical — Religious, spiritual, non-discussible, beyond study, but real nevertheless. Q: Why? A: Because!

Preservation Satisfaction — Some people gain great benefit from knowledge of animals being protected. Some participate in such protection and care.

Recreation — For a variety of diverse recreational activities and benefits, hunting as well as observation and related activities. This includes appeal, use, and potentials including anticipation and reflection about the animals.

Esthetic Appeal or Stimuli — As beautiful buildings and paintings are managed and preserved, so are animals - for all of their esthetic stimuli.

Monetary — Market-place as well as other monetary related benefits from willingness -to -travel cost estimates to recreational and other equipment and extra food, longing, services, licenses and fees.

Physical — For meat, animal parts such as leather, furs, bone, glands, and sustenance.

Wilderness — As an essential part of wilderness and the wildlands; a requirement by many people for completeness and wholeness. A wilderness without certain wild animals is not wilderness, certainly not like the former conditions.

Gene Pool Potentials — Genetic engineering and related potentials suggest that retaining all human options (if the costs are reasonable) may be of great benefit in the future for medicine, domestic animal, and other enhancements.

Monitor of Environmental Quality — The analogy of taking a canary into the mine to warn miners of unsafe air or gas conditions is often used. Wildlife, when properly monitored, may suggest conditions or problems that need to be addressed before they become large human problems.

Source of Historic Insight and Identity — Only when people understand animals and their interactions with people in the past can people understand the past. Pioneer competition with crop pests, use of passenger pigeons for food, and the efforts needed to trap beaver are dimensions of the past essential for understanding the settlement of the country.

Educational Analog — Animal examples, both positive and negative, can be drawn for effective teaching of often-important concepts and rules.

Human Health Analog — Humans may learn about population health, stress, crowding, disease transmission, and other phenomena by studying wild animals.

Disease Prevention and Control — Zoonoses, the wildlife diseases also of people, need study and effective control.

Functional Contribution to Ecosystems — The evident role of wildlife in all ecosystems is noted, some playing positive, some negative, and some inconspicuous and even unknown roles.

Damage Management — Wildlife effects that produce esthetic losses, crop loss, mechanical failures, increased risks, disease threats or outbreaks, and real financial loss need attention. Wildlife management objectives are often cast as positive actions to increase or stabilize animal populations. Management is needed to reduce negative animal effects, no matter what direction the population density changes.

Perhaps the next time someone asks, what do you do?, the answer will be: wildlife management that achieves the following objectives...and then the list can be recited easily. Any one objective from this list of 15 seems worth the hard work.

CALENDAR OF UPCOMING EVENTS

April 19-24, 1998: 11th International Conference on Bear Research and Management, Park Vista Hotel, Gatlinburg, Tennessee. Contact: Michael R. Pelton, Univ. of TN, Dept. of Forestry, Wildlife & Fisheries, P.O. Box 1071, Knoxville, TN 37901, (423) 974-7126, FAX (423) 974-4714, e-mail: <pelton@utkux.utcc.utk.edu>

May 3-8, 1998: 11th Australian Vertebrate Pest Conference, Lord Forrest Hotel, Bunbury, Western Australia. Particularly relevant to those involved in research, extension, management, and administration of vertebrate pests in Australia and New Zealand. Bunbury is located 2 hours south of Perth. Contact: Promaco Conventions Pty Ltd., PO Box 890, Canning Bridge, Western Australia 6153, telephone 08 9364 8311, or e-mail: <promaco@promaco.com.au>, or visit http://www.promaco.com.au.

May 17-20, 1998: 1st National Extension Natural Resources Conference, Ruttger's Bay Lake Lodge, Deerwood, Minnesota. Aimed at natural resource educators focused on environmental education, fisheries, forest products, forestry, range, recreation, water, and wildlife. Pre-registration, $80 (postmarked by 4/17). For questions on conference registration and arrangements, contact: Tracey Benson (800) 367-5363 or email <tbenson@extension.umn.edu>. For lodging questions, contact Ruttger's Bay Lodge at (800) 450-4545.

June 16-18, 1998: 8th Annual Meeting, Bird Strike Committee USA, Holiday Inn Lakeside / Burke Lakefront Airport, Cleveland, Ohio. Of particular interest to military and civilian personnel responsible for airfield operations, land-use planners, researchers, FAA inspectors, engineers, pilots, and aviation industry representatives. The meeting will emphasize hands-on demonstrations and activities, and will include papers and posters on topics such as wildlife control techniques, new technologies, land-use issues, engineering standards, and habitat management. Pre-registration $60 before May 1, $75 afterward. For hotel reservations at room rate of $89, call (216) 241-5100 and mention BSC-USA. For conference registration, contact Betsy Marshall, USDA-APHIS-WS, Sandusky, OH at (419) 625-0242, fax (419) 625-8465, or email: <nwrcsandusky@lrbcg.com>

Oct. 5-9, 1998: International Conference on Rodent Biology and Management, Beijing, China. Organized by Instit. of Zoology, Chinese Academy of Science, and CSIRO Div'n. of Wildlife and Ecology, Australia. For additional information and mailings, contact: Zhibin Zhang, Secretary General, Int'l. Conference, 19 Zhongguancun Road, Haidian District, Beijing 100080, P.R. China, or e-mail: <zhangzb@panda.ioz.ac.cn.>

ADC in the News

Vicar Takes Sunday Off to Join Hunt Marchers

"Nature is red in tooth and claw," declares The Rev. Toddy Hoare, a British country vicar. "The cleanest and noblest death a fox can experience is from a hound. If the country is not to be dictated to by urban people, we have to stand up and be counted," he noted, while stating he would be taking a Sunday off in order to participate in the Countryside March in London, a protest against proposed anti-fox hunting legislation. While missing three Sunday morning services, he promised to hold an extra Saturday night Evensong service.

According to Rev. Hoare, nearly all his parishioners, in 12 parishes around Thirsk in North Yorkshire, support him, but one person has threatened to leave the church in protest. Mr. Hoare, a former soldier and an accomplished sculptor, has recently written a book about the psychology of hunting, entitled *The Wagging Tail.*

— excerpted from an article by Paul Wilkinson in the London Times, 2/24/98

Cat Contraceptive Approach Developed by Student Intern

Veterinary student Michelle Meister-Weisbarth, working in conjunction with Dr. Stephen Boyle in the Virginia-Maryland Regional College of Veterinary Medicine, used her recent summer internship grant to develop a genetically-altered bacterium that may be able to serve as an oral contraceptive for feral cats.

Using a modified strain of a Salmonella bacterium, Meister-Weisbarth developed an immuno-contraceptive approach that potentially could be delivered to free-living cats via an oral bait. An oral "inoculation" with the bacterium containing a protein from the zona pellucida, which surrounds the mammalian ovum, causes the cat's system to produce antibodies which block sperm from fertilizing the egg. With the preliminary phases of the research accomplished, the researchers are seeking funds to continue with laboratory testing of the technique.

— excerpted from a news release from Virginia Tech, 2/18/98

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Your contributions of articles to *The Probe* are welcome and encouraged. The deadline for submitting materials is the 15th of the month prior to publication. Opinions expressed in this publication are not necessarily those of NADCA.

Legislative Update

California Trap Ban Initiative Submitted

A statewide political committee ProPAW ("Protect Pets and Wildlife") claims to have submitted more than 720,000 signatures in an effort to qualify a statutory initiative for the November 1998 ballot. The measure would ban "cruel and indiscriminate traps and poisons." The California Constitution requires 433,269 valid signatures to qualify a statewide petition. Verification of the signatures is now under way.

The initiative measure, if passed by voters, will ban body-gripping traps— including leghold traps, Conibears, and snares — for recreation or commerce in fur. It also bans leghold traps for nearly all other purposes, but would allow continued use of rat and mouse traps, and would allow snares to continue to be used in solving wildlife damage problems. An exemption is provided for use of "padded-jaw leghold traps" by government employees or their agents "in the extraordinary case where... the trap is the only method available to protect human health or safety." The measure specifically bans the use of Compound 1080 and sodium cyanide, which initiative proponents claim are "slow-acting poisons which cause extremely drawn-out and agonizing deaths."

According to initiative campaign chairperson Aaron Medlock, "The response from voters throughout the state was steadfast support for the initiative and utter shock upon learning that these traps and poisons are still legally used in California." Sponsors of the initiative include the American Society for the Prevention of Cruelty to Animals; the Animal Protection Institute; The Ark Trust, Inc.; Doris Day Animal League; The Fund for Animals; The Humane Society of the United States; and The International Fund for Animal Welfare.

Mourning Dove Debate Heats Up

The mourning dove may not be a very large creature, but it sure is stirring-up big controversy all over the country. From Ohio, where anti-hunting groups are trying to try and repeal the state's three-year-old dove hunting season, to Iowa and Minnesota, where bills have recently been introduced to authorize hunts, the country's 2.5 million dove hunters should prepare for war with animal rights groups in 1998.

The Wildlife Legislative Fund of America and the Wildlife Conservation Fund of America have been instrumental in battling extremist groups which work to take away the right of Americans to dove hunt. Currently, 38 states enjoy a dove hunting season, but that could change quickly if animal rights groups have their way.

In Ohio, a group calling itself the Save the Dove Committee recently filed the required petition signatures needed to place an anti-dove hunting ballot issue before the voters in 1998. If they are successful, the anti-hunting groups will surely try the same tactics in other states and with other seasons.

"It is important for all people to understand what agenda is behind this issue," said Bud Pidgeon, President of the Wildlife Legislative Fund of America (WLFA). "This campaign is simply one step in an overall effort to not only stop hunting, fishing and trapping in the state, but also to restrict the ways in which people use animals for food and medical research to cure deadly diseases." The WLFA/WCFA has united with an array of organizations to raise the funds necessary to protect scientific wildlife management in Ohio. The supporters include the National Wild Turkey Federation, the National Trappers Association, Ducks Unlimited, Pheasants Forever, the National Rifle Association and the Izaak Walton League of America, including state chapters of a number of these groups. "This is more than just a dove hunting issue," said Pidgeon. "Once people understand what's at stake, I am confident they will understand why they should oppose this measure."

Constitutional Amendment on Utah Ballot

A bill to amend the state constitution has passed both houses of the State Legislature and it will be on Utah's November ballot. This constitutional amendment will require a "super majority" (2/3) vote on any wildlife issue. According to proponents, if passed, this measure will greatly reduce the possibility of animal rights groups being able to put individual issues like trapping on an initiative ballot. Utah members of the National Trappers Association state that they feel this will be a pilot for other states to follow in the future to protect themselves from this favorite tool of the anti's. Proponents are busy soliciting funds needed to mount an effective media campaign prior to the November election.

Sportsmen Gain Victory in New Jersey Case

Sportsmen in New Jersey have won a victory as a trial court dismissed an animal rights group's challenge to the hunter harassment law. The ruling came February 3, 1998.

The Rutgers Animal Rights Center, on behalf of individual plaintiffs, had challenged the hunter harassment law on a variety of constitutional grounds, including freedom of religion. This case is important because it would set a new, dangerous precedent, allowing animal rights activists to challenge other states' hunter harassment laws. The WCFA will continue to monitor this case closely. An appeal by animal rights groups is expected.

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The Editor thanks the following contributors to this issue: Michael Conover, Bob Giles, Jr., Jane Rohrbough, and the Wildlife Legislative Fund of America's monthly WLFA Update. Send your contributions to **The PROBE**, *4070 University Road, Hopland, CA 95449.*

More Reports From 4th Annual Conference of The Wildlife Society

Mountain Lion Migration and Territoriality in Response to Distribution of Prey

Becky M. Pierce, Vernon C. Bleich, R. Terry Bower, and John D. Wehausen*
**Institute of Arctic Biology and Wildlife, University of Alaska, Fairbanks*

A mountain lion population that concentrates on the eastern scarp of the Sierra Nevada, with a wintering mule deer population, has been studied for four years. Thirty-two mountain lions were fitted with radio telemetry collars and their movements were tracked weekly by air. Mountain lions moved seasonally with the deer population, and two females and one juvenile male annually made extensive migrations over the crest of the Sierra Nevada, establishing summer home ranges on the west side in areas already occupied by mountain lions. Home range isopleths of 25, 50, 75, and 100% were developed for mountain lions on the east side of the mountain range and overlaid on deer killed by mountain lions during the same time period to test the prediction that individuals have areas of exclusive use for killing deer. Minimum distance values among individual mountain lion locations also were calculated to investigate social organization of mountain lions on the winter range.

Wildlife Secondary Toxicity Studies with Warfarin

Richard Poche
Genesis Laboratories, Inc., Fort Collins, CO

Warfarin was developed in the 1940s as a rodenticide for both commensal and field rodent control. After reports of warfarin resistance in rats and mice from various parts of the world, development of more toxic and persistent second generation anticoagulants virtually replaced warfarin. In the U.S., second generation rodenticides are not registered by the U.S. EPA for field rodent control. Warfarin is a much safer compound, however, little information has been published on the potential for secondary poisoning of warfarin to species that may consume warfarin killed rodents. Laboratory tests were conducted in which 500 ppm warfarin bait was presented to prairie dogs until death. These were in turn fed to European ferrets for seven days, and the carnivores monitored for 21 days post exposure. There were no observed effects of warfarin on the 10 ferrets used in the study. Similarly laboratory rats were dosed with 500 ppm warfarin bait until death, then presented to magpies for 5 days. The magpies were monitored for signs of warfarin poisoning for an additional 21 days, during which no effects were observed. Warfarin should be considered for field use where rodent control is necessary. These studies show that the potential for secondary poisoning to non-target wildlife are greatly reduced if warfarin is used as compared to the more toxic secondary generation products.

Integrating Ecological and Human Dimensions in Developing Adaptive Management for Mountain Lions in Montana

Shawn J. Riley, Richard A. Malecki, and John J. McCarthy*
**New York Cooperative Fish and Wildlife Research Unit, Cornell University, Ithaca, NY*

We describe research conducted in Montana to help reduce uncertainty associated with decisions concerning mountain lion management in a changing environment. Mountain lions in western North America provide a unique opportunity to examine the ecological and human components leading to recovery of a large carnivore in a human-dominated environment. Once considered rare, mountain lions in western North America may be the only large cat, globally, increasing its distribution and abundance in the face of expanding human development. The American West is experiencing the most massive redistribution of humans since the early land-rush days. At the same time, mountain lion populations are reportedly reaching historically high levels. The resultant increase in human-mountain lion interactions is creating new challenges and dilemmas for people living and working in the region, as well as for agencies responsible for lion management. We present results of a landscape-level analysis of how habitat, prey abundance, land-use, and policy have affected the distribution and abundance on mountain lions. Factors affecting human attitudes and beliefs towards mountain lions and lion management were determined by personal interviews, content analyses of newspaper coverage on mountain lions, and a mail questionnaire sent to 2650 Montanans. We discuss conceptual and quantitative adaptive management models for mountain lions in Montana developed through integration of ecological and human dimensions.

Managing Predators to Enhance Populations of Birds and Small Mammals

Frank C. Rohwer and Pamela R. Garrettson.
School of Forestry, Wildlife and Fisheries, Louisiana State University, Baton Rouge, LA

In most bird populations the majority of eggs do not hatch due to nest predation. For some groups of birds we have a sufficient number of nesting studies over time to document increases in predation due to human induced changes in habitat, predator communities, or both. Attempts to increase productivity often focus on nest success because this component of avian recruitment shows the greatest potential for improvement. We compare the ability of habitat management versus direct predator control to increase reproduction by a variety of birds and small mammals, but concentrat on waterfowl because of the quantity and quality of available information. Cost comparisons suggest that direct predator control may be more efficient than habitat-oriented approaches in managing for waterfowl populations. Good data on the efficiency, costs and benefits of predation management are sorely needed for species other than waterfowl. Predator reduction may improve avian recruitment and be cost competitive with alternative management strategies, but we must first examine public perceptions of predator management before considering its use.

Development of Repellent Products to Reduce Cable-Gnawing Damage by Norther Pocket Gophers

Stephen A. Shumake, Ray T. Sterner, and Stanley E. Gaddis
USDA/APHIS/ADC Research, National Wildlife Research Center, Fort Collins, CO

Potential adverse environmental effects posed by rodenticide baits or toxic burrow fumigants could be minimized or eliminated through the use of more effective repellents to reduce both the gnawing damage to communications/power cables and the re-invasion of rodents into previously controlled agricultural areas. A series of laboratory studies were conducted to quantify gnawing behaviors of northern pocket gophers and to develop improved cable repellent coatings. These included observational evaluations of the degree of incisor, mouth and nose contacts made as the animals gnawed cable samples and other materials. Video recordings and chemical marking agents were used to examine and quantify the degree of mucosal/incisor contact by individual animals. Descriptive results of this research, as well as, the repellent efficacy afforded by denatonium benzoate and capsaicin formulations are

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NADCA Honors Wes Jones

Wes Jones, outgoing NADCA Treasurer, was honored at the NADCA meeting held at the recent 18th Vertebrate Pest Conference in Costa Mesa, California. Wes was presented with a plaque and a collection of "thank you" letters from NADCA members. The plaque, inscribed with the NADCA logo, recognized Wes' status as a charter member of NADCA and his service as a Regional Director from 1981 to 1985, and as Treasurer from 1986 to 1997.

Wes retired in 1978 from the US Fish & Wildlife Service ADC program as Region III supervisor, stationed in the Twin Cities, MN. Born and raised in Connecticut, he received his B.S. from the Univ. of Connecticut and his M.S. in wildlife management from the Univ. of Massachusetts. During his studies, he researched squirrel damage to cables for Bell Telephone, and he did his thesis on white-tailed deer. He first was employed by USFWS in 1950 in Westboro, MA, from where he then went to the Rodent Control Fund in Amherst to supervise bait mixing. Later, he became ADC Assistant District Agent for Massachusetts, Connecticut, and Rhode Island. In 1958 he shifted to the USFWS Branch of Refuges, serving as refuge manager at the Bombay Hook (DE) and Moosehorn (ME) Wildlife Refuges. He returned to ADC in 1966 as State Supervisor for So. Dakota and Nebraska, stationed in Pierre. He advanced to Assistant Chief of ADC in Washington, D.C., a position he held from 1969 to 1971.

Wes and his wife Barbara continue to reside in Shell Lake, WI. If you'd like to add your note of appreciation to those Wes has received, he can be contacted by mail at: W8773 Pond View Drive, Shell Lake WI 54871, or by email to: <n9phs@spacestar.net>.

Legislative Update

WCFA Stands Up for Wildlife Management in New Mexico Case

The Wildlife Conservation Fund of America has been granted permission by the New Mexico Supreme Court to assist in the appeal of a case which blurs the lines between animal cruelty laws and the rights of hunters. This case focuses on a New Mexico rancher arrested for snaring deer on his property. He was found guilty of violating an animal cruelty statute. The case is important because it raises many issues concerning the rights of states to apply anti-cruelty statutes to game animals and sporting activities such as hunting and trapping.

The WCFA filed a brief with the court arguing that the cruelty statute, a version of which exists in every state, should not apply to game animals. Historically, these laws have been found to apply to domestic animals only. A reversal of the lower court's decision would set a strong precedent to defeat attempts by animal rights groups to expand the applicability of cruelty statutes to sporting activities. WCFA may have an opportunity to participate in an oral argument on the appeal in May or June.

Berryman Institute Announces 1998 Award Winners

The Jack H. Berryman Institute for Wildlife Management Announced the winners of its 1998 awards at the 18th Vertebrate Pest Conference, held in Costa Mesa, California.

JOHN TURMAN, USDA-APHIS-WS district supervisor in El Cajon, California received the *Professional Achievement Award.* This award recognizes superior "hands-on" effort to help resolve wildlife-human conflicts. Mr. Turman was recognized for his role in reducing bird-aircraft collisions and in protecting threatened and endangered species.

Program Achievement Awards were given to the VERTEBRATE PEST COUNCIL for fostering communication in wildlife damage management over the past 35 years, and to DR. WALTER E. HOWARD for his work in creating the Vertebrate Pest Council and in promoting scientifically-based wildlife damage research and education during his career. Receiving the award on behalf of the Council was Rex O. Baker, current Council chairperson and a faculty member at California State Polytechnic University, Pomona. Accepting his award, whose announcement was accompanied by a standing ovation of the 390+ persons at the Conference, Dr. Howard noted that at the age of 80, he is gratified that interest in research-based solutions to vertebrate pest problems continues to grow and is recognized as a integral part of wildlife management.

The *Research Award* was presented to DR. L. DAVID MECH, recognized for his innovative research on wolf ecology and management. Dr. Mech is a scientist with the USGS/Biological Research Division, stationed at the Northcentral Forest Experiment Station in St. Paul, Minnesota.

GUY E. CONNOLLY was the recipient of the *Lifetime Achievement Award.* In presenting the award, Berryman Institute Director Michael Conover noted Mr. Connolly's distinguished research career with the USDA National Wildlife Research Center, working on a number of projects related to coyote depredation control including the Livestock Protection Collar and the M-44 device. In addition to his numerous publications on coyote biology and management, Mr. Connolly has also published more than 30 papers on mule deer and Columbian black-tailed deer.

The Berryman Institute is a national organization, centered in the Department of Fisheries and Wildlife at Utah State University. Each year the Institute bestows awards for exemplary work focused on enhancing human-wildlife relationships through the resolution of human-wildlife conflicts.

Congratulations to the 1998 Berryman Award Winners!

More Reports From 4th Annual Conference of The Wildlife Society

presented. Relevant cable parameters (e.g. diameter, texture, hardness) and anatomical characteristics of the species (e.g. trigeminal nerves, diastema) that may affect repellent delivery are discussed.

The Use and Effectiveness of Various Predator Control Efforts at a Colonial Waterbird Rookery on Coastal Texas

Richard T. Speer and M.L. Lange
Brazoria NWR Complex, Angleton, TX

The Cedar Lakes Rookery is located on the San Bernard National Wildlife Refuge in Brazoria County, Texas. It is comprised of four islands created from dredged material in 1972, and has included up to 20 nesting species of waterbirds. Raccoons are a major predator at this colony. By 1983, only a few breeding pairs remained on the islands, due primarily to predation. A trapping program was implemented to restore the colony, which was successful. For ten years, cage traps were used to trap raccoons, demanding daily attendance, thus causing daily disturbance to the colony. During the 1994 nesting season, Conibear (instant kill) traps were used exclusively to reduce the frequency of visits to the colony. An increase from 543 breeding pairs in 1993, to 2085 in 1994, on the largest of the four islands, was directly attributed to use of the Conibear traps. During the winter of 1995, a predator fence armed with electric wires, was built on this island to further reduce trapping effort and disturbance. This resulted in an increase of over 750 additional nesting pairs on the island during 1995, with a total of 2837. It appears that in this case, a predator fence was a relatively cheap and effective means of reducing trapping effort and disturbance to a nesting colony, while still protecting the colony from predators.

Conflicting Attitudes to the Management of Dangerous Suburban Wildlife in Australia

Leoni K. Thomas and Darryl N. Jones
Suburban Wildlife Conflict Group, Faculty of Environmental Sciences, Griffith University, Nathan, Queensland, Australia

The Australian magpie (*Gymnorhina tibicen*) is a crow-sized passerine (endemic but closely related to the corvids) found throughout most of Australia. Preferring open forest and well grassed ground-cover, it is one of the most successful species to exploit the human-dominated environment of most Australian cities and towns. The magpie is naturally territorial and aggressive and this behavior had led to a serious conflict with humans: during the magpie's breeding season a proportion (between 10-15%) of birds becomes extremely aggressive towards humans. Humans receive injuries from the birds ranging from mild disturbance to serious injury requiring hospitalization. The widespread distribution of the species, the number of injuries received (up to 25% of people hit require medical attention) and the serious nature of these injuries (mainly to the head, especially eyes), suggests this to be one of the most important suburban human-wildlife conflicts in the world. The agencies responsible for the management of this species typically use removal or lethal control as the primary means of management. We assessed public acceptance of a variety of management actions using a questionnaire survey of three groups; those directly affected; member of pro-wildlife groups; and a "general public" group. We confirmed that there is a confrontation emerging between two publics: those insisting on immediate action and those opposing any actions against the "offending" bird. Of direct relevance to management, we also found significant disagreement between all groups (including those directly affected) and agencies, over the main actions currently employed.

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Hunting as a Damage Control Technique in Agriculture: Are We Harvesting the Right Deer?

Kurt C. VerCauteren and Scott E. Hygnstrom
Department of Forestry, Fisheries and Wildlife, University of Nebraska, Lincoln

The efficacy of annual firearm hunting as a means to control deer populations and decrease crop damage levels is poorly understood. We evaluated how corn development, corn harvest, and hunting affected home ranges and movements of female white-tailed deer in and near DeSoto National Wildlife Refuge (DNWR), Nebraska and Iowa. Further we determined if damage-causing does were available to be harvested during hunting seasons in the same area they caused damage. Thirty does were radio-equipped and tracked from January 1991 to January 1993. Fifty-three percent were residents of DNWR, 30% emigrated, and 17% migrated annually. Home ranges overlapped cornfields most, and damage peaked, when corn was in the tasseling-silking stage of development. After corn harvest, home ranges shifted 157 m (±63 CI) deeper into permanent cover. Also, home ranges increase in size 32% (9-64% CI) as does were forced to find alternative sources of cover and food. Resident does were available to hunters from September through November in the same areas that they caused damage. Migrators helped to sustain the populations away from DNWR. They appeared especially vulnerable as they returned to DNWR after state firearm and archery seasons and before the DNWR muzzleloader hunt in December. Twenty percent of the transients (emigrators and migrators), however, were legally harvested, whereas 40% of the residents were harvested. Depredation hunts and removals around large blocks of permanent cover should be conducted in early to mid-fall, to reduce deer densities in the immediate area and yet prevent imposing additional mortality on migratory deer.

Forest Damage by Black Bears in Western Washington

Gary W. Witmer, William B. Stewart, and Gary M. Koehler
USDA/APHIS National Wildlife Research Center, Department of Natural Resource Sciences, Washington State University

We surveyed black bear damage to coniferous trees from shortly after den emergence until early summer in the Tolt River watershed. The area is heavily roaded because of intensive forest management, but public access is largely restricted. Fresh damage was found in 50% of 75 plots used by female bears, but only 35% of 26 plots used by male bears. Areas occupied by female bears had many more damaged trees (1995) than areas occupied by male bears (43). Most damage was to Douglas fir in stands with a more open canopy. Damage occurred across a wide range of elevations and slopes. Male bears tended to avoid roads, while females used overgrown roads more than their availability. These roads may provide easy travel and an abundant source of forage, favoring high reproductive success in this high-density bear population. Hot spot bear hunts and a supplemental pellet feeding program are in place to reduce bear damage to commercial tree species.

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More Reports From 4th Annual Conference of The Wildlife Society

A Two-Year Evaluation of Porcine Zona Pellucida as an Immunosterilant Vaccine for Coyotes

Doris E. Zemlicka, L.A. Miller, B.E. Johns, and J.R. Mason*
**USDA/APHIS/ADC, National Wildlife Research Center, Predation Ecology and Behavior Project, Utah State University*

The available evidence suggests that coyotes are less likely to kill livestock in the absence of pups. Accordingly immunological sterilization may have utility as a coyote depredation control strategy. We investigated porcine zona pellucida as a candidate immunocontraceptive vaccine during the 1995-1996 and 1996-1997 breeding seasons. During early December 1995, sham females (n=6) were injected with saline containing Freund's complete adjuvant (FCA). Treatment females (n=6) were injected with saline containing FCA and 300 g PZP. Booster injections were administered in early January 1996. Sham females received saline containing Freund's incomplete adjuvant (FIA); treatment females received saline containing FIA and 200 g PZP. Control females (n=6) were never injected. Subsequently, all females were paired with males, and social, territorial and breeding behavior were observed. In 1996, control females produced 27 pups, sham females produced 17 pups, and treatment females produced 6 pups ($p<0.05$). For treatment females, mean litter size decreased in 1996 relative to 1994 and 1995 ($p=0.03$). For sham females, the opposite effect was observed, mean litter size increased in 1996 ($p=0.04$). No differences were observed between groups in social or territorial behavior ($p>0.25$). In the second year of the study, booster injections were administered in early December 1996 to treatment females (n=5). Sham females (n=5) were never injected. Breeding behavior was observed and again, there were no apparent differences between treatment and sham pairs ($p>0.25$).

Explosive Growth of Giant Canada Goose Populations in the Mississippi Flyway

Guy G. Zenner and John C. Wood*
**Iowa Department of Natural Resources, Clear Lake, IA*

Giant Canada geese were extirpated from nearly all their original nesting range in North America by the 1930s. Although giant Canada goose restoration projects were initiated as early as the 1930s, the rediscovery of giant Canada geese wintering at Rochester, Minnesota, by Harold Hanson in 1962 fueled restoration efforts throughout the Mississippi Flyway. By the 1980s, giant Canada geese were nesting and wintering in all states and provinces in the Flyway. Giant Canada geese adapted well to modern environments and have enhanced experiences for consumptive and nonconsumptive recreationalists. The Canada goose harvest has ranked second among all waterfowl in the Flyway since 1988, the majority of these geese being giants or other large subspecies. Increasing numbers of giant Canada geese began to confound traditional winter goose surveys in the Flyway in the 1980s. Development of breeding ground surveys for interior and giant Canada geese indicated that winter surveys were underestimating Canada goose populations, especially giant Canada geese. Giant Canada geese breeding ground surveys during 1994-96 suggested this population was 3 times larger than indicated by winter surveys. The 1996 giant Canada goose spring population in the Flyway was estimated at over 1 million birds: projections suggest it could reach 1.7 million by 2000. Canada goose harvests have increased at an average annual rate of 9% in the Flyway during 1991-95 and will exceed 1 million by 2000 if this trend holds. In addition to enhancing recreational opportunities, giant

Continued in next column

Canada geese have created new management challenges, including increasing numbers of human-goose conflicts. Banding and band recovery information indicate that young giant Canada geese and failed breeders often migrate to sub-arctic habitats to molt. These molting birds may be competing with other geese for food and contributing to degradation of sub-arctic coastal habitats.

Non-Target Response to Operational Strychnine Baiting and Aluminum Phosphide Fumigation to Reduce Pocket Gopher Populations in Southern Oregon

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Pocket gophers are an impediment to reforestation efforts in the Pacific Northwest. Efforts to establish tree seedlings on sited infested with pocket gophers can be futile unless population reduction measures are implemented. Strychnine baiting is a standard tool to reduce pocket gopher populations. Aluminum phosphide is a possible alternative measure. A capture and release program was implemented in southern Oregon on 2 strychnine sites (2.8 ha) and 3 aluminum phosphide sites (2.8 ha) to monitor impacts on non-target species. Sites adjacent to each treated site were monitored to assess temporal effects not related to toxicant application. Operational applications were made by land managers during late summer and early fall. Two non-target species dominated the trap and release efforts: golden mantled ground squirrels and yellow pine chipmunk. Strychnine baiting negatively impacted individuals and reduced ground squirrel populations immediately post treatment. Aluminum phosphide treatment did not appear to be detrimental to non-targets. Non-target populations were similar on treated and reference plots the next spring, regardless of treatment.

Mountain Beaver Response to Seedlings Planted Within Different Habitat Regimes

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Mountain beaver often impede the regeneration of Douglas fir stands in the Pacific Northwest. Manipulating habitat to provide alternative resources may reduce mountain beaver clipping. Dietary preference is relative and forage selection reflects available choices. A series of studies assessed the impact of alternative forage on mountain beaver response to Douglas fir and western redcedar seedlings. An initial cafeteria trial identified temporal changes in mountain beaver preference for a variety of plants. Pen studies were then conducted over a 3-year period to assess the number of seedlings clipped when planted within different habitat regimes and under varying animal foraging pressure. Mountain beaver confined to a single habitat regime inflicted more damage to seedlings in barren habitat than they did to seedlings in a complex habitat. Damage declined in the barren habitat when animals were permitted to roam among barren, moderate and complex habitats. The least amount of damage occurred when population densities were low, and this damage most frequently occurred in the complex, or more desirable, habitat regime. Conclude that the impact of manipulating habitat to reduce damage depends on population densities and the mobility of target animals within the treated area.

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